

Choosing a bloodline source

AE Casey, SJ Martin, RP Graham, SJ Semple, and KD Atkins

Merino Breeding Group
Industry and Investment NSW

The performance of Merino bloodlines is reported in Primefact 930, *Merino bloodlines: the comparisons 1999–2010*. Throughout this publication it will be referred to as Primefact 930.

Introduction

The following five steps, in conjunction with the latest Merino bloodline comparison results, will help a commercial wool producer to efficiently identify a ram source that will maximise profitability.

Step 1: Your flock breeding objective

Firstly, set your commercial flock's long-term breeding objective. Fleece weight, fibre diameter and

liveweight commonly dominate the emphasis that is placed on the range of traits in a breeding objective, due to their influence on profitability.

Fleece weight, fibre diameter and liveweight components of the objective can be a production target or an economic statement.

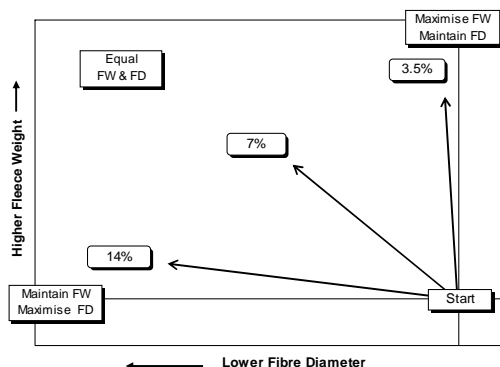
- **Production target:** for example, 'I wish to increase fleece weight by 10 per cent while maintaining my flock's current fibre diameter and body weight'.
- **Economic statement:** for example, 'based on a 7% index, I will place equal emphasis on reducing fibre diameter and increasing fleece weight, while maintaining body weight, reproduction and staple strength'.

Understanding the relationships between the two forms of objectives is critical if the breeding objective is going to accurately reflect your aspirations. For further information, please refer to the box below.

The production and market relationship

The graph below shows the general relationship between a production target objective and an economic-based objective or index. The three options shown are examples of the continuous range of objectives that breeders commonly choose. An index is a summary of the performance of a sheep for a number of traits expressed as a single value.

Fig 1. Basic breeding objective options



Each option describes both a production direction that a breeder may feel is the 'way to go' and a relative market value for fleece weight and fibre diameter (micron premium – MP).

For example, in the graph, the '3.5%' option describes the target breeding objective, 'I want to maximise the production of fleece weight, while maintaining fibre diameter' and also the market-based breeding objective, 'I feel that the wool market value for 1 kg of my wool at 1000 cents will increase in price by 35 cents (i.e., 3.5% MP) with a 1 micron reduction in fibre diameter'.

Breeders need to understand the basis for and the outcome of their breeding objective, as opposed to merely having one – often inherited or provided by someone else. Understanding both the performance outcome and the type of market you consider will be in place in the future is critical to this understanding.

See Primefact 930 (page 19-20) for more market information.

Step 2: Benchmark performance

Establish your current bloodline's performance relative to other bloodlines; that is benchmark its performance. Compare this performance to your flock's breeding objective and identify if there are other bloodlines that match your objective. If there are suitable bloodlines, make a 'short list' of options that will be the basis of your further considerations in steps 3, 4 and 5.

Benchmarking can be effectively carried out for either a production or economic-based breeding objective.

- **Benchmarking a production objective:**

Find your current bloodline in Table 1 and use its code to locate the bloodline on Figures 2a, 2b or 2c (Primefact 930). **Do not** use your flock's on-farm fleece weight and fibre diameter performance to locate the position of your flock on Figure 2a, 2b or 2c. Your on-farm environment will be different to the 'average' comparison environment used to calculate bloodline performance, which are based on comparisons made across Australia.

- **Benchmarking an economic objective:**

To benchmark your bloodline's economic performance, use the calculated gross income if it matches your objective. A five-year price average (2005/06 to 2009/10) was used to calculate the gross income, refer to Table 1 and Figures 3a, 3b and 3c of Primefact 930.

The five-year average price has also been graphed in Figures 5 of Primefact 930.

If your objective is significantly different from the objective described by the gross margins provided in Table 1, you will need to calculate a gross income using performance results in Table 1 of Primefact 930. See [how to calculate your gross income](#) on page 3 of this Primefact.

Step 3: Consider all traits

You must consider your flock's long-term breeding objective for all traits if you are to make a sound choice of bloodline. While fleece weight, fibre diameter and liveweight will dominate many Merino breeding objectives, other traits will also affect your choice of bloodlines. For example, if additional wool quality traits are in your breeding objective and were not included in the benchmarking process, they now need to be considered. It is important that the influence of these traits on choosing a bloodline source takes account of their relative emphasis in the objective.

Economic benchmarking has an advantage when a large number of traits are being considered. The relative economic values given to the traits in the breeding objective allow all traits in the results to be accurately balanced for each bloodline. Variables such as the effects of liveweight on stocking rate can also be accurately accounted for by the gross income calculation.

When all traits are considered, bloodlines that were short-listed in step 2 and are now shown to be significantly poorer performers can be dropped from further consideration.

Traits in your objective not listed in Table 1 of Primefact 930, such as fleece rot resistance, reproductive rate and conformation will also need to be considered. You need to research the relative performance for these traits for your short-listed bloodlines. Some of these traits are evaluated at **Merino sire evaluation** sites, and site reports can be accessed from the AMSEA website: <http://www.merinosuperiorsires.com.au>.

If you find that a short-listed bloodline does not have satisfactory performance for a trait, this bloodline may need to be dropped from the list.

It is critical that you keep in mind the relative emphasis of additional traits to strike the correct balance for your breeding objective. For example, do not drop a bloodline from your short list that is a standout performer for all the high emphasis traits in your breeding objective just because the bloodline is a little below the best performers for a low emphasis trait.

Step 4: Performance progress

The short-listed bloodlines that remain after steps 2 and 3 should be investigated further. Their breeding objectives, selection practices, genetic progress in the last 10 years and coming 10 years may alter their performance relative to the results presented in Primefact 930. There is a five to 10 year lag between a bloodline's performance in Primefact 930 and their current performance. This will also be influenced by the origin of the teams entered trials. If the teams have originated direct from a bloodlines ram breeding flock there will be less lag than a bloodline whose data has been based solely on client teams.

Discuss, with a representative from each of the bloodlines that remain on your shortlist, the results from their own performance monitoring and their bloodline's likely rate of progress in future. Without this information, it will be difficult to adjust the performance of results in Table 1 of Primefact 930 to account for the breeding progress that some bloodlines will be making.

Each bloodline's performance monitoring system should be able to show their last 10 years' progress. The likely rate of progress defined by each bloodline's breeding objective will detail the change in performance that can be expected in the next 10 years of production. Based on your best estimate of changes in bloodline performance, reposition the short-listed bloodlines and where necessary recalculate economic performance.

How to calculate your gross income to match your breeding objective

1. Calculate the bloodline production levels for clean fleece weight, fibre diameter and body weight using the overall means for traits and the deviations shown in Table 1 of Primefact 930.
2. Calculate the price per kg of wool for each appropriate bloodline according to the bloodline performance levels for diameter, style, length, colour and tenderness.
3. Multiply the AWEX clean fleece price by 0.9 to give a clip price. If the production weights are greasy then the clip price must be multiplied by a yield figure, for example 0.68 (68%) to give a greasy clip price.
The value of wool can be based on prices and premiums for a relevant period of the market
4. Calculate a carcass value. Multiply the liveweight by 45% (average dressing percentage). The dressed carcass weight is then multiplied by the average value per kilogram.
5. Calculate income per wether for each bloodline as the product of clean fleece weight and adjusted prices plus 0.4 of the carcass value.
6. Calculate gross income per head and convert these to a common basis, a dry sheep equivalent (DSE) rating for each bloodline, using a 50 kg wether base, as: $DSE = (\text{body weight}/50)^{0.73}$

Step 5: Constraints

Buying rams from a bloodline identified by the process in steps 2, 3 and 4 must be practical. Therefore, you should choose the best of the bloodlines left on your short list after Step 4, and ensure that they are a practical option.

The following are some of the practical constraints that need to be considered:

- the price of rams
- the availability of rams at the bloodline
- the time of year rams are available relative to your flocks need for the rams
- distance to travel to select rams and/or transport them to your flock
- the availability of relevant information to help you accurately select the rams available for sale

These constraints will often influence the selection of a ram source, particularly when several bloodlines have a similar rank based on the traits in your breeding objective.

The outcome

The five steps above allow the choice of a bloodline to be made efficiently and effectively. They commonly allow the many and varied bloodlines that are available in the marketplace to be reduced to a single best option that a breeder can feel confident in.

The value of a breeder completing or being a part of the five-step process is that they will have a clear understanding of the issues that might cause them to reconsider their bloodline choice.

Further information

To make the best use of this information, producers should consider the details on the inside cover of the bloodline performance folder and the additional information in the folder.

Primefact 930 contains a comprehensive list of further information (page 21) that should be considered in detail before making your selection of the bloodline you wish to select from and the selection of rams from that bloodline.

If you require assistance to work through these steps or further information, contact an Industry & Investment NSW Sheep & Wool Officer.

Sally Martin: Ph 02 6380 1705; Fax 02 6382 2228, email sally.martin@industry.nsw.gov.au;
Allan Casey: Ph 0408 279 719; fax (02) 6391 3922; email allan.casey@industry.nsw.gov.au;
or visit www.merinobloodlines.com.au

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